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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/989,367	11/20/2001	Oscar E. Agazzi	41281/NJP/B600	1105

23363 7590 04/04/2006

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EXAMINER	
TORRES, JUAN A	
ART UNIT	**PAPER NUMBER**
2611	

DATE MAILED: 04/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/989,367	AGAZZI, OSCAR E.	
	Examiner	**Art Unit**	
	Juan A. Torres	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 March 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-46 and 49-51* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-46 and 49-51* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Regarding claims 37, 38, 40 and 41:

The Applicant contends, "There is no teaching or suggestion in Agarossi to provide a non-linear channel estimator and a Viterbi decoder where the number of states corresponds to the memory width".

The Examiner disagrees, and asserts, that Agarossi discloses a channel memory width (page 3375 section 3 and 3.1 channel memory L) and the number of states corresponding to the channel memory (page 3375 section 3 and 3.1 M^L and table 1),

For these reasons and the reason stated en the previous Office Action, the rejection of claims 37, 38, 40 and 41 are maintained.

Regarding claims 1-22:

Applicant's arguments with respect to claims 1-11 have been considered but are moot in view of the new ground(s) of rejection.

Regarding claims 23-36, 45 and 50:

The Applicant contends, "These rejections are based on a combination of no less than three references from three separate fields of endeavor. Sakaguchi involves a coupling system for an underwater optical repeater system. Agarossi involves a receiver for an optical disc. Sands involves digital magnetic recordings. Applicant respectfully submits that due to the diverse nature of these references, there could not have been any motivation for one skilled in the art to combine all three of these references for any reason. Moreover, there is no teaching to combine these three references in such a

manner that would provide exactly the claimed methods and apparatuses. The Examiner asserts that a motivation would spring from a desire to reduce ISI and mean-squared error. However, the Examiner points to no teaching in the art regarding why one skilled in the art would select the specific elements from each of these three references that were selected by the Examiner. Moreover, the Examiner points to no teaching in the art regarding why one skilled in the art would combine these reference in a specific manner that allegedly reads on the claims. Moreover, there is no teaching or suggestion that the asserted combination would provide the alleged advantages or even function properly. Agarossi discloses a specific matched filter, nonlinear combiner and transversal FG filter combination. There is no teaching or suggestion that this specific circuit could be modified with the specific dedicated circuit of Sands. Furthermore, there is no teaching or suggestion regarding how this could be done or whether this could be accomplished without the combined circuits interfering with one another and actually reducing the performance of the circuit. Applicant respectfully submits the specific combinations set forth in claims 23 - 36, 45 and 50 are not taught or suggested by Sakaguchi, Agarossi and Sands".

The Examiner disagrees, and asserts, that the cited references are form the same problem solving area of optical non-linear channels.

In response to applicant's argument that the examiner has combined an excessive number of references, in the present case three, reliance on a large number of references in a rejection does not, without more, weigh against the obviousness of

the claimed invention. See *In re Gorman*, 933 F.2d 982, 18 USPQ2d 1885 (Fed. Cir. 1991).

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the suggestion/motivation for doing so would have been to reduce the nonlinear ISI (Agarossi abstract) and to minimize the means-squared error (Sands abstract).

For these reasons and the reason stated en the previous Office Action, the rejection of claims 23-36, 45 and 50 are maintained.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 15 and 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per claim 15, claim recites the limitation "the difference between the channel model value and the output of the channel is used to update all the FIRs" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

As per claim 19, claim 19 is rejected because depends directly from claim 15.

Claim 19 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 19 recites the limitation "wherein a LMS algorithm is used to update all the FIRs" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-22 and 51 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claims 1-22 and 51 are rejected because they claim a process that consists solely of the manipulation of an abstract idea that is not concrete or tangible. See In re Warmerdam, 33 F.3d 1354, 1360, 31 USPQ2d 1754, 1759 (Fed. Cir. 1994). See also Schrader, 22 F.3d at 295, 30 USPQ2d at 1459.

Claims 1-22 and 51 don't produce any practical application that produces a useful, concrete and tangible result State Street, 149 F.3d at 1373, 47 USPQ2d at 1601-02. Claims 1-22 and 51 don't produce any practical application, they don't claim what is the channel model for, and they only make the manipulation of an abstract idea that is not concrete or tangible.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-11 and 51 are rejected under 35 U.S.C. 102(b) as being unpatentable over Sands ("Non-linear identification on the digital magnetic recording channel", Twenty-Fifth Asilomar Conference on Signals, Systems and Computers, 4-6 Nov. 1991 Page(s): 6 - 10 vol.1) (with admitted prior art for inherency).

As per claim 1, Sands discloses a method for modeling the behavior of a data channel the method comprising determining a sequence of data input to an optical fiber data channel (figure 1 x_k pages 6-7 section 2.1. Sands discloses in the abstract that "the method can be extended to any discrete-input, discrete-time channel with finite memory". Admitted prior art discloses that the optical fiber is a dispersive channel, that is equivalent to be a channel with finite memory); using at least part of the sequence of data input to the data channel as an index to a channel model value (figure 1 x_k pages 6-7 section 2.1); sampling the data after it has passed through the channel to produce a sampled value (figure 1 y_k pages 6-7 section 2.1); comparing the channel model value with the sampled value (figure 1 y_k - $\hat{y}_k$ pages 6-7 section 2.1); and adjusting the channel model value based on the results of the comparison between the channel model value and the sampled value (page 9 section 2.6).

As per claim 2, Sands discloses claim 1. Sands also discloses determining a sequence of data input to the data channel comprises determining the last N bits input to the channel (figure 1 x_k pages 6-7 section 2.1).

As per claim 3, Sands discloses claim 2. Sands also inherently discloses where N=5 (pages 6-7 section 2.1).

As per claim 4, Sands discloses claim 1. Sands also discloses that the sampling of the data after it has passed through the channel to produce a sampled value comprises producing a real number representing the sampled value ($y_{k,i}$ pages 6-7 section 2.1).

As per claim 5, Sands discloses claim 1. Sands also discloses adjusting the channel model value further comprises adjusting the channel model value according to an LMS (Least Means Squared) algorithm (page 9 section 2.6).

As per claim 6, Sands discloses claim 1. Sands also discloses adjusting the channel model value further comprises adjusting the channel model value until it converges (page 9 section 2.6).

As per claim 7, Sands discloses claim 6. Sands also discloses comprising converting the look up table into Volterra Kernels (pages 6-7 section 2.1).

As per claim 8, Sands discloses claim 7. Sands also discloses converting the look up table into Volterra Kernels using a Hadamard transform (page 7 section 2.2).

As per claim 9, Sands discloses claim 7. Sands also discloses adjusting the Volterra Kernels based on the results of the comparison between the channel model value and the sampled value (page 9 section 2.6).

As per claim 10, Sands discloses claim 9. Sands also discloses eliminating the insignificant Volterra Kernels (pages 7-8 section 2.4).

As per claim 11, Sands discloses a method for modeling the behavior of a data channel the method comprising determining a sequence of data input to an optical fiber data channel (figure 1 x_k pages 6-7 section 2.1. Sands also discloses in the abstract that "the method can be extended to any discrete-input, discrete-time channel with finite memory". Admitted prior art discloses that the optical fiber is a dispersive channel, that is equivalent to be a channel with finite memory); determining a Volterra Series representation of the channel (figure 1 pages 6-7 section 2.1); accepting at least part of the sequence of data input to the data channel into the Volterra series representation of the channel to produce a channel model value (figure 1 pages 6-7 section 2.1); sampling the data after it has passed through the channel to produce a sampled value (figure 1 y_k pages 6-7 section 2.1); comparing the channel model value with the sampled value (figure 1 y_k - $\hat{y}_k$ pages 6-7 section 2.1); and adjusting the channel model value based on the results of the comparison between the channel model value with the sampled value (page 9 section 2.6).

As per claim 51, Sands discloses claim 1. Sands also discloses configuring the channel model in accordance with a training sequence (page section 2.2, x_k is a know sequence).

Claims 37, 38, 40 and 41 are rejected under 35 U.S.C. 102(b) as being anticipated by Agarossi ("An effective Non Linear Receiver for high density optical disk",

IEEE Global Telecommunications Conference, 1998. GLOBECOM 98, The Bridge to Global Integration, IEEE Volume 6, 8-12 Nov., 1998 Page(s): 3374 - 3378 vol.6).

As per claims 37 and 40, Agarossi discloses receiving a signal including linear and non linear components (pages 3375-3376 sections 3 and 3.1); estimating, in a non linear channel estimator, the expected values of the received signal (pages 3375-3376 sections 3 and 3.1); computing the branch metrics based on the expected values of the received signal (pages 3375-3376 sections 3 and 3.1); providing the computed branch metrics to a Viterbi decoder (pages 3376-3377 section 3.2); and Viterbi decoding the received signal using the branch metrics provided to the Viterbi decoder (pages 3376-3377 section 3.2).

As per claims 38 and 41, Agarossi discloses providing the value of the received signal to a Volterra kernel estimator (abstract; figure 1; and pages 3375-3376 sections 3- 3.2); and computing the expected value sent based on the output of the Volterra kernel estimator (abstract; figure 1; and pages 3375-3376 sections 3- 3.2).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 23-36, 45 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakaguchi (US 4747094) in view of Agarossi ("An effective Non Linear Receiver for high density optical disk", IEEE Global Telecommunications

Conference, 1998. GLOBECOM 98, "The Bridge to Global Integration", IEEE Volume 6, 8-12 Nov. 1998 page(s): 3374 - 3378 vol.6), and further in view of Sands ("Non-linear identification on the digital magnetic recording channel", Twenty-Fifth Asilomar Conference on Signals, Systems and Computers, 4-6 Nov. 1991 Page(s): 6 - 10 vol.1).

As per claim 23 and 30, Sakaguchi discloses converting the optical signal into an electrical signal (figure 1 column 4 lines 25-58). Sakaguchi doesn't specifically disclose summing the electrical signal with a correction signal; providing the summed signal to a detector; detecting the summed signal to produce decisions; providing the decisions to a nonlinear channel estimator; estimating the correction signal in the nonlinear channel estimator; and adapting the estimating in the nonlinear channel estimator in accordance with the decisions. Agarossi discloses an equalizer summing the electrical signal with a correction signal (abstract; figure 1 page 3376 section 3.2); providing the summed signal to a detector (figure 1 Viterbi detector pages 3376-3377 section 3.2); detecting the summed signal to produce decisions (figure 1 $\hat{a}_n$ pages 3376-3377 section 3.2). Sakaguchi and Agarossi are analogous art because they are from similar problem solving area of non-linear channels. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the optical channel receiver disclosed by Sakaguchi nonlinear estimator disclosed by Agarossi. The suggestion/motivation for doing so would have been to reduce the nonlinear ISI (Agarossi abstract). Sands disclose providing the decisions to a nonlinear channel estimator (figure 1 x_k pages 6-7 section 2.1); estimating the correction signal in the nonlinear channel estimator (figure 1 y_k - $\hat{y}_k$ pages 6-8 section 2.1 and 2.5); and

adapting the estimating in the nonlinear channel estimator in accordance with the decisions (page 9 section 2.6). Sakaguchi, Agarossi and Sands are analogous art because they are from similar problem solving area of non-linear channels. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the optical channel receiver disclosed by Sakaguchi and Agarossi the nonlinear channel identification disclosed by Sands. The suggestion/motivation for doing so would have been to minimize the means-squared error (Sands abstract).

As per claims 24 and 31, Sands discloses accepting the decisions (figure 1 x_k pages 6-7 section 2.1); predicting the inter-symbol interference of the channel in a nonlinear channel estimator (figure 1 y_k - $\hat{y}_k$ pages 6-8 sections 1 Introduction, 2.1 and 2.5); and forming a correction signal from the predicted inter-symbol interference (figure 1 y_k - $\hat{y}_k$ pages 6-8 sections 1 Introduction, 2.1 and 2.5). Sakaguchi and Sands are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the optical channel receiver disclosed by Sakaguchi the nonlinear channel identification disclosed by Sands. The suggestion/motivation for doing so would have been to minimize the means-squared error (Sands abstract).

As per claims 25 and 32, Sands discloses providing the decisions to a plurality of Volterra Kernels (page 7 section 2.2); and summing the output of the plurality Volterra Kernels to form a correction signal (page 7 section 2.2). Sakaguchi and Sands are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to

incorporate in the optical channel receiver disclosed by Sakaguchi the nonlinear channel identification disclosed by Sands. The suggestion/motivation for doing so would have been to minimize the means-squared error (Sands abstract).

As per claims 26 and 33, Sands discloses comparing the predicted inter-symbol interference to inter-symbol interference in the electrical signal (pages 8-9 section 2.5); and updating the Volterra Kernels based on the result (page 9 section 2.6). Sakaguchi and Sands are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the optical channel receiver disclosed by Sakaguchi the nonlinear channel identification disclosed by Sands. The suggestion/motivation for doing so would have been to minimize the means-squared error (Sands abstract).

As per claims 27 and 34, Sands discloses using a LMS (Least Means Squared) algorithm to update the Volterra Kernels (page 9 section 2.6). Sakaguchi and Sands are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the optical channel receiver disclosed by Sakaguchi the nonlinear channel identification disclosed by Sands. The suggestion/motivation for doing so would have been to minimize the means-squared error (Sands abstract).

As per claims 28 and 35, Sands discloses providing the data decisions as an address into a look up table (abstract); outputting a value stored in the look up table as the predicted inter-symbol interference (pages 7-8 section 2.4); comparing the predicted inter-symbol interference to the inter-symbol interference in the electrical signal (pages

8-9 section 2.5); and updating the value stored in the look up table based on the result (page 9 section 2.6). Sakaguchi and Sands are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the optical channel receiver disclosed by Sakaguchi the nonlinear channel identification disclosed by Sands. The suggestion/motivation for doing so would have been to minimize the means-squared error (Sands abstract).

As per claims 29 and 36, Sands discloses using a LMS (Least Means Squared) algorithm (page 9 section 2.6). Sakaguchi and Sands are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the optical channel receiver disclosed by Sakaguchi the nonlinear channel identification disclosed by Sands. The suggestion/motivation for doing so would have been to minimize the means-squared error (Sands abstract).

As per claims 45 and 50, Sakaguchi and Agarossi disclose claims 43 and 46. Sakaguchi and Agarossi don't disclose estimating in a lookup table estimator the distortion introduced in the optical channel. Sands discloses estimating in a lookup table estimator the distortion introduced in the optical channel (abstract and pages 7-8 section 2.4). Sakaguchi and Agarossi are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the optical channel receiver disclosed

by Sakaguchi the nonlinear estimator disclosed by Agarossi. The suggestion/motivation for doing so would have been to reduce the nonlinear ISI (Agarossi abstract).

Claims 39 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Agarossi ("An effective Non Linear Receiver for high density optical disk", IEEE Global Telecommunications Conference, 1998. GLOBECOM 98. The Bridge to Global Integration, IEEE Volume 6, 8-12 Nov. 1998 Page(s): 3374 - 3378 vol.6) in view of Sands ("Non-linear identification on the digital magnetic recording channel", Twenty-Fifth Asilomar Conference on Signals, Systems and Computers, 4-6 Nov. 1991 Page(s): 6 - 10 vol.1). Agarossi discloses claims 37 and 40. Agarossi doesn't disclose providing the value of the received signal as an address to a look up table; and looking up the stored value as the actual value transmitted. Sands discloses providing the value of the received signal as an address to a look up table (pages 6-8; abstract and section 2.4); and looking up the stored value as the actual value transmitted (pages 6-8; abstract and section 2.4). Agarossi and Sands are analogous art because they are from similar problem solving area of non-linear channels. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the nonlinear optical channel receiver disclosed by Agarossi the nonlinear channel identification disclosed by Sands. The suggestion/motivation for doing so would have been to minimize the means-squared error (Sands abstract).

Claims 43, 44, 46, and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakaguchi (US 4747094) in view of Agarossi ("An effective Non Linear Receiver for high density optical disk", IEEE Global Telecommunications

Conference, 1998. GLOBECOM 98, The Bridge to Global Integration, IEEE Volume 6, 8-12 Nov. 1998 Page(s): 3374 - 3378 vol.6).

As per claims 43 and 46, Sakaguchi discloses a method for detecting digital data modulated on an optical signal and received over an optical channel, the method comprising converting the optical signal to an electrical signal (figure 1 column 4 lines 25-58); converting the electrical signal to a multibit digital representation (column 9 lines 24-25, the signal is a digital signal); estimating distortion introduced in the optical signal by the optical channel (figure 1 column 4 lines 25-58). Sakaguchi doesn't specifically disclose compensating the multibit digital representation for the distortion; and detecting the digital data from the compensated multibit digital representation. Agarossi discloses converting the electrical signal to a multibit digital representation (page 3377 section 4); estimating distortion introduced in the optical signal by the optical channel (figure 1 pages 3374-3375 section 2.1; pages 3375-3376 section 3.1); compensating the multibit digital representation for the distortion (figure 1 pages 3376-3377 section 3.2); and detecting the digital data from the compensated multibit digital representation (figure 1 pages 3376-3377 section 3.2). Sakaguchi and Agarossi are analogous art because they are from similar problem solving area of non-linear channels. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the optical channel receiver disclosed by Sakaguchi the nonlinear estimator disclosed by Agarossi. The suggestion/motivation for doing so would have been to reduce the nonlinear ISI (Agarossi abstract)

As per claims 44 and 49, Sakaguchi and Agarossi disclose claims 43 and 46. Agarossi also discloses estimating in a Volterra Kernel estimator the distortion introduced in the optical channel (figure 1 pages 3376-3377 section 3.2). Sakaguchi and Agarossi are analogous art because they are from similar problem solving area of non-linear channels. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the optical channel receiver disclosed by Sakaguchi the nonlinear estimator disclosed by Agarossi. The suggestion/motivation for doing so would have been to reduce the nonlinear ISI (Agarossi abstract)

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juan A. Torres whose telephone number is (571) 272-3119. The examiner can normally be reached on Monday-Friday 9:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H. Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Juan Alberto Torres
03-28-2006

TEMESGHEN GHEBRETINSAE
PRIMARY EXAMINER
3/28/06